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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,439

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Jamil A Siddiqui

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SABIC AMERICAS, INC.
1600 INDUSTRIAL BLVD.
SUGAR LAND, TX 77478

EXAMINER

NGUYEN, COLETTE B

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,439	Applicant(s) SIDDIQUI ET AL.	
	Examiner COLETTE NGUYEN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of application

Claim 1-14 and 16-21 are pending and presented for examination wherein claim 15 was cancelled. Claims 1,3,10 and 16 have been amended with a declaration filed on September 29, 2008.

Claim Rejections – 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 to 3 and 16** are rejected under 35 U.S.C. 102(b) as being anticipated by Sublett (5,017,680).

3. Sublett teaches a catalyst system comprised of a titanium/ alkali metal or alkaline earth metal complex to reduce the quantity of acetaldehyde and yellowness in polymerization and esterification of Ethylene terephthalate. Titanium glycolate is one of the preferred titanium alkoxides to be used with sodium salt dissolved in ethylene glycol, which results in sodium glycolate. The catalyst complex has a ratio of 4:1

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titanium/metal. The composition of the catalyst taught by Sublett encompasses the instant claim. (Col.2, line10, Col3 line 50 and Col.7, line 15).

4. Regarding claim 1. It is rejected as Sublett discloses a catalyst complex for esterification and trans- esterification reactions, comprising: i) a polymeric titanium glycolate represented by the formula $[\text{TiO}_4(\text{CH}_2)_4]_n$ where n is up to 200; and ii) an alkali metal glycotate, wherein the molar ratio of the polymeric titanium glycolate and the alkali metal glycolate is 1.25:1 to 100:1. (Col3, ln 50-55, and Col 5, ln 8-36).

5. Regarding Claim 3. It is rejected as Sublett teaches a ratio of at least of 4:1 or greater of titanium/metal. The mole ratio is within the range of the instant claim of 1.25:1 to 10:1. (Col 3, line 50-55).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4-14 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sublett as applied to claim 1 above, and further in view of Putzig (6,066,714). Sublett discloses a complex catalyst of titanium glycolate with an alkali or alkali earth metal glycolate for preparing polyesters from dimethyl terephthalate which results in fast reaction rates and reduces acetaldehyde generation rate but do not disclose using the catalyst to prepare polyesters from a dicarboxylic acid and ethylene glycol. Putzig teaches polyesters produced from trans-esterification of dialkyl

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terephthalate ester with a glycol by direct esterification of terephthalic acid followed by condensation with a catalyst in esterification, transesterification or polycondensation steps. Putzig teaches a detailed process of esterification, transesterification, polymerization or combination thereof, using a titanium- containing catalyst composition (Col 1-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the complex catalyst taught by Sublett to make a polyester by contacting a dicarboxylic acid such as terephthalic acid and ethylene glycol with the catalyst complex as an alternative process for making polyester, as Putzig teaches that polyesters are made by either trans-esterification of dialkyl terephthalate ester (such as dimethyl terephthalate) with a glycol or by direct esterification of terephthalic acid with a glycol. The use of the catalyst complex of Sublett in either process of making polyesters would have been obvious to one of ordinary skill in the art, as suggested by Putzig.

Putzig teaches esterification process of any carbonyl compound which can react with an alcohol to produce an ester; such carbonyl compounds, include, but are not limited to, acids, esters, amides, acid anhydrides, acid halides, oligomers or polymers having repeat units derived from an aid, or combination of two or more thereof. Organic acid having the formula of $\text{HO}_2\text{CA}^1\text{CO}_2\text{H}$ (a dicarboxylic acid) in which A^1 is an alkylene or arylene with 2 to about 30 carbons, preferably 4 to 15 carbons with an alcohol, which has the formula of $\text{R}(\text{OH})_n$, or an alkylene glycol of the formula $(\text{HO})_n\text{A}(\text{OH})_n$ or combination thereof in which R can be the same or different hydrocarbyl radical with preferably 1 to about 8 carbons per radical (Col 6, line 25-67).

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8. Regarding Claim 8. Putzig teaches esterification process using an alcohol and an oligomer having repeating units derived from an organic acid or ester (Col 6, line 15).

9. Regarding Claims 11 to 13. Putzig specifically teaches a process temperature of 250-300C under a pressure of 0.001 to about 10 atmospheres, with a molar ratio of the alcohol to the carbonyl compound of 1:1 to 10:1. The teachings encompass the instant claims (Col 7, line 22-35).

10. Regarding Claim 14 and 19 to 21. Sublett specifically teaches a concentration of about 10-100ppm prior to addition to the reaction mixture or in situ i.e., in the process feed (Col 5, line11). The concentration of the catalyst revealed by Sublett encompasses the concentration of the instant claims.

11. Regarding Claim 18. It is rejected as Putzig specifically teaches a ratio of 1:1 to about 3:1 of alcohol to dicarboxylic compound (Col 7, line3).

Response to Amendment

1. The declaration under 37 CFR 1.132 filed on Sept 29th, 2008 is insufficient to overcome the rejection under 35 U.S.C. 103 (a) by Sublett in view of Putzig as set forth in the last Office action because: Sublett discloses a ratio of 4:1 which anticipates the claimed molar ratio range. Further, there are conflicting L values from the table in the specification on page 8 vs the table in the declaration which refutes the evidence.

Applicant argues that "*The results show that the most important L value INCREASES when the Ti/Na ratio deviates IN UPWARD DIRECTION from the 1:1 ratio*". However,

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in the table on page 8 of the specification, examples # 3,4,9 L value is less than 83.1, the L value of 1:1 ratio despite the ratio deviating in an upward direction from 1:1.

2. Furthermore, the examiner has reviewed and considered applicant arguments filed on September, 29th, 2008 but they are not persuasive. Despite that the applicant amends claim 1 to have n changed from "n=1 to 200" to "n is up to 200" and states in the Remarks that polymeric titanium glycolate is $n > 1$, this definition does not correspond with the definition of polymeric glycolate set forth in the specification on page 5 where in the formula shown, $n = 0$ to 200. If $n = 0$ then the structure is $\text{TiO}_4(\text{CH}_2)_4$ which corresponds to $n=1$ for the claimed formula. Therefore the claimed polymeric titanium glycolate still includes $n=1$. The titanium glycolate disclosed by Sublett meets the claimed polymeric titanium glycolate. Applicant has not presented any arguments that Sublett does not disclose a molar ratio within the now claimed range of 1.25:1 to 100:1.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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/COLETTE NGUYEN/
Examiner, Art Unit 1793

CN
December 15, 2008

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793